focused primarily on walking behavior. Daily step count recording with a pedometer offers a low cost convenient method of quantifying the amount of walking-related physical activity. The purpose of this study was to identify the role of psychological factors in determining average daily step count among people with painful knee OA.
**Methods:** Our sample consisted of 166 people with painful knee OA: aged >= 50 years, visual analogue scale for pain >= 40/100, radiographic Kellgren & Lawrence grade >= 2, and Western Ontario & McMaster Physical Function (WOMAC PF) >= 25. A multiple regression analysis was carried out with average daily step count recorded over 7 days using a pedometer as the dependent variable. Psychological variables were entered as independent variables after entering age, body mass index, pain (WOMAC pain score), and physical function (WOMAC PF score) as covariates. These demographic variables are known to be associated with physical activity in knee OA. Psychological variables included the subscales of the Depression, Anxiety & Stress (DASS) scale (Depression, Anxiety and Stress), Arthritis Self-Efficacy scale (pain, function and other), Pain Catastrophizing Scale (Rumination, Magnification and Helplessness) and Attitudes to Physical Activity Scale (Self-efficacy, barriers and benefits).
**Results:** DASS Stress subscale accounted for 6% of the variance in step count after accounting for the covariates (15% of variance) and was the only significant psychological contributor ($\beta$ = -0.25, SE = 52.3, $p < 0.05$). Higher levels of stress were associated with lower daily step counts.
**Conclusion:** After controlling for demographic and symptomatic variables, only stress was associated with average daily step count. Our findings are consistent with previous studies showing no associations between depression or anxiety and physical activity levels of people with knee OA. The findings indicate that stress may be an important psychological factor that needs to be addressed in order for people with knee OA to increase their amount of daily walking as a means to becoming more physically active.

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## DEVELOPMENTAL ORIGINS OF SELF-REPORTED ARTHRITIS AND OSTEOARTHRITIS: NEW ENGLAND FAMILY STUDY

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**Purpose:** Low and high birthweights have been linked to adverse health outcomes in adulthood, including body composition , obesity and diabetes . Fetal programming related to maternal stress and under- or over-nutrition during middle to late gestation has been proposed as a possible mechanism for these associations. Animal ecology studies show an association between early life poor nutrition and greater OA prevalence later in life. We hypothesized that osteoarthritis linked to both bone and cartilage metabolism might also be operating under such a developmental origins hypothesis in humans.
**Methods:** Birth weight(an indicator of fetal growth) and maternal smoking status a measure of intra-uterine stress) were assessed in 609 offspring in Providence, Rhode Island as part of the Collaborative Perinatal Project (CPP) between 1959 and 1966 and self-reported arthritis was prospectively ascertained on average 42 years later. Small for gestational age (SGA) was defined as &lt 10th%ile and LGA as &gt 90th%ile for the entire Providence CPP cohort (n=4,184) . Maternal smoking during each trimester was also assessed via self report. Self-reported arthritis and osteoarthritis was based upon the question derived from the National Health Interview Survey: Have you ever been told by a doctor or health professional that you have arthritis or rheumatism? If yes, what type of arthritis do/did you have? Rheumatoid arthritis (RA), osteoarthritis(OA), another type of arthritis? (please specifiy). Logistic regression analysis determined odds ratios (OR) for risk of self-reported arthritis and OA adjusting for age, race, gender, and educational attainment for both birthweight adjusted for gestational age (model 1) and maternal smoking (model 2) . An additional covariate of maternal SES was added to the maternal smoking analysis. Those reporting RA, both RA and OA, and other arthritis were excluded from the OA analysis.
**Results:** Of the 609 offspring with self-reported arthritis data, 52 reported a physician diagnosis of OA, 45 RA, 5 reported both and 8 reported other types of arthritis and 486 reported no arthritis. A modest signal that was not statistically significant was found for associations of birthweight adjusted for gestational age and maternal smoking with self-reported arthritis and for maternal smoking with OA.(see table)
**Conclusion:** We found modest evidence to support the developmental origins of arthritis hypothesis in this preliminary analysis. The small sample size, young age of our cohort and the lack of x-ray documentation of self-reported arthritis and osteoarthritis limit the inferences that can be drawn from our pilot study. If future larger studies find stable associations between intra-uterine exposures and OA, then epigenetic mechanisms to explain these results should be pursued.

**Odds Ratio and 95% CI of self-reported arthritis and OA**

| Self-reported Arthritis | OR | 95% CI | Self-reported OA | OR | 95% CI |
|---|---|---|---|---|---|
| LGA vs AGA | 1.03 | 0.51-2.09 | | 0.56 | 0.16-1.92 |
| SGA vs AGA | 1.16 | 0.59-2.29 | | 0.86 | 0.28-2.59 |
| Model 2 | | | | | |
| Maternal Smoking | 1.04 | 0.65-1.65 | | 1.06 | 0.55-2.05 |

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## ASSOCIATIONS BETWEEN DIETARY PATTERNS, TEA & COFFEE DRINKING AND OSTEOARTHRITIS

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**Purpose:** There are few studies that have explored the relationship between diet and prevalence of osteoarthritis (OA). Although it is usual to study individual nutrients, a dietary pattern approach has the advantage of assessing food combinations, and it avoids the errors associated with nutrient databases. We have shown that dietary patterns were associated with markers of bone health: a healthy diet being related to lower bone turnover; and both a processed food diet, and a diet low in milk and tea consumption, being associated with lower hip bone mineral density (BMD). The aim of this study was to test the relationship between dietary patterns and osteoarthritis.
**Methods:** Data from the 1998-2000 visit of the Aberdeen Prospective Osteoporosis Screening Study (APOSS) were used for this study. Women were aged between 50-62 y. They were asked whether they suffered from OA. This was validated by radiological records in a subset who also stated the site of OA (which included hands, hips, knees, feet, spine, shoulders and elbows). Diet was assessed using food frequency questionnaires (FFQ) (n=3229) and dietary patterns were generated by principal components analysis using energy-adjusted food intakes. Logistic regression was used to test the relationship between dietary pattern and prevalence of self reported OA.
**Results:** A total of 596 women had self reported OA compared to 2633 who reported no OA. Five dietary patterns (accounting for 26% of the total variance in diet) were tested with OA prevalence, using logistic regression. One dietary pattern, which had negative factor loadings for milk, tea and cereal, and positive loadings for crisps/ nuts, sauce/ jam and confectionery, was associated with lower OA prevalence. This relationship remained significant after adjustment for weight, height, age, national deprivation category, smoking, physical activity and also hip BMD. Further exploration of tea drinking showed that whereas self-reported OA was associated with more tea drinking; coffee drinking appeared to be protective with higher consumption in women who did not report OA. Further, although numbers were small both coffee drinking and being heavier were significantly associated with reduced risk of hand OA (reported hand OA, n 148; did not report hand OA n 96).

**Tea and coffee consumption according to self reported osteoarthritis (OA)**

| Mean [SD] | OA | No OA | P |
|---|---|---|---|
| | n 596 | n 2633 | |
| Tea intake (cups/week) | 18.5 [14.7] | 16.3 [14.0] | <0.001 |
| Coffee intake (cups/week) | 12.8 [12.1] | 14.8 [13.2] | 0.007 |
| Tea and coffee intake (cups/week) | 31.4 [13.9] | 31.1 [13.9] | 0.701 |